APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,686	09/19/2005	David Andrew Horsnell	16450US01	2174

23446 7590 02/26/2007	EXAMINER
MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661	UHLENHAKE, JASON S

	ART UNIT	PAPER NUMBER
	2853	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/521,686	HORSNELL ET AL.
	Examiner	Art Unit	
	Jason Uhlenhake	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 December 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-4</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>18 January 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Slomianny (GB 2134045a) in view of Peer (U.S. Pat. 4,567,570).

Slominanny discloses:

- ***regarding claims 1 and 3,*** a method and apparatus including a print head

comprising a rotatable print array (Figures 5-6) comprising a plurality of print valves (jet

orifices), a valve control means in communication with the print array a pulse generating

means, in use generating a regular sequence of pulse signals and means for rotating, in

use, the print array to predetermined rotation (Page 1 Lines 1 – 14; Lines 48-64)

- the valve control means (control apparatus) comprises: one or more data

input lines to receive print data; memory means comprising an array of memory

locations to store the received print data, one dimension of the array of memory location

being associated with the plurality of print valves (jet orifices) of the rotatable print array

and the other dimension of the array of memory locations being associates with a

plurality of pre-determined time periods (Page 2, Lines 71 – 80)

- processes the print data in accordance with the predetermined rotation of the rotatable print array (Page 1, Lines 48-64)

Slominanny does not disclose expressly the following:

- ***regarding claims 1 and 3,*** divides the print data into a plurality of sub-elements, each print data sub-element being associated with a respective print valve and a respective predetermined time period; writes each print data sub-element to the memory location associated with the respective print valve and the respective predetermined time period; sequentially reads one or more print data sub-elements from the memory locations associated with one pre-determined time period; activates the respective print valves associated with the one or more print data sub-elements read; activates the respective print valves associated with the one or more print data sub-elements read and is repeated for a subsequent pre-determined time period for each pulse generated by the pulse generating means

- ***regarding claims 2 and 4,*** an apparatus and method that overwrites the memory locations read after the activation of the print valves

Peer discloses the following:

- ***regarding claims 1 and 3,*** divides the print data into a plurality of sub-elements (Abstract), each print data sub-element being associated with a respective print valve and a respective predetermined time period; writes each print data sub-element to the memory location associated with the respective print valve and the respective predetermined time period; sequentially reads one or more print data sub-elements from the memory locations associated with one pre-determined time period;

activates the respective print valves associated with the one or more print data sub-

elements read; activates the respective print valves associated with the one or more

print data sub-elements read and is repeated for a subsequent pre-determined time

period for each pulse generated by the pulse generating means (Column 1, Line 65 –

Column 2, Line 13; Column 5, Lines 3-35; Column 6, Lines 5-30), for the purpose of

driving a slanted print head of a printer with a system having a low component count

via the use of a microprocessor and a short processing time via unconventional

microprocessor-memory-I/O design and implementation.

- *regarding claims 2 and 4,* overwrites the memory locations read after the

activation of the print valves (Figure 6; Column 5, Lines 3-19), for the purpose of driving

a slanted print head of a printer with a system having a low component count via the

use of a microprocessor and a short processing time via unconventional

microprocessor-memory-I/O design and implementation.

At the time the invention was made it would have been obvious to a person of

ordinary skill in the art to incorporate the teaching of Peer into the device of Slominanny,

for the purpose of driving a slanted print head of a printer with a system having a low

component count via the use of a microprocessor and a short processing time via

unconventional microprocessor-memory-I/O design and implementation.

Response to Arguments

Applicant's arguments filed 12/4/2006 have been fully considered but they are

not persuasive.

Applicant argues that Peer fails to disclose "sequentially reading one or more print data sub-elements from the memory locations associated with one pre-determined time period" and "repeating" the sequentially reading step "for a subsequent pre-determined time period for each pulse generated by the pulse generating means". However, Peer discloses new imaging data bits are externally latched and then written into the RAM/memory (81) from the latches (65-68), and then the output data bits are sequentially latched into the buffer output latches (93-100) from the RAM/memory (81) banks (sequentially reading one or more print data sub-elements from the memory locations). Thereafter, in response to a fire signal applied to the drive pulse generator (pre-determined time period), the latch data bits within the buffer output latches (93-100) are transferred into the final output latch and enables the final output latch stage to output its data bits as control signals for operating the print element drivers; and repeating the sequentially reading step for a subsequent pre-determined time periods (print loop) for each pulse generated (fire pulse) by the pulse generating means(Figure 6; Column 6, Lines 5-30; Column 8, Lines 35-40)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

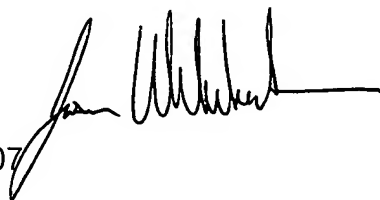than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Uhlenhake whose telephone number is (571) 272-5916. The examiner can normally be reached on Monday - Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSU
February 9, 2007

STEPHEN MEIER
SUPERVISORY PATENT EXAMINER